

Attorney Docket No. 073600.P022

PATENT

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

In re Application of:) Appeal No. 2003-0594
)
UENO, et al.) Examiner: Brian Miller
)
Serial No.: 09/479,267) Art Unit: 2652
)
Filing Date: January 06, 2000)
)
For: **SPIN-VALUE MAGNETORESISTANCE**)
 SENSOR AND THIN FILM MAGNETIC)
 HEAD)
)

Appellant's Reply Brief (35 CFR § 1.192)

Mail Stop Appeal Brief - Patents
Commissioner for Patents
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Sir:

Applicant (Appellant) hereby respectfully submits this Reply Brief in response to the Examiner's Answer mailed 12/17/04 in connection with the above-referenced application on appeal to the Board of Patent Appeals and Interferences from the decision of the Examiner of Group Art Unit 2652, dated June 08, 2001.

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I. ARGUMENT

A. *PRIMA FACIE* OBVIOUSNESS DOES NOT EXIST WITH RESPECT TO THE REJECTION OF CLAIMS 1-4

Applicant respectfully submits that a *prima facie* case of obviousness does not exist with respect to the rejection of claims 1-4 and respectfully traverses the rejection of claims 1-4 for lack of *prima facie* obviousness.

1. Applicant's Claimed Structure Is Not Inherently Disclosed In The Aoshima Reference

As explained in *Continental Can Co. v. Monsanto Co.*, 948 F.2d 1264, 1269 (Fed. Cir. 1991), inherency “may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient. *Id.* at 1269, 20 USPQ2d at 1749 (quoting *In re Oelrich*, 666 F.2d 578, 581 (CCPA 1981)). Here, the Examiner maintains that, “The fcc structure is inherent to the NiFeCr layer since it follows from the PdPtMn being of fcc structure, i.e., the head would not operate properly if NiFeCr (and Ta layer 21) did not also have a fcc structure.” In other words, the Examiner urges the Board to accept the proposition that simply because the Aoshima reference discloses a NiFeCr base film, the claimed fcc structure as claimed by Applicant should be assumed as inherent in that disclosure. Applicant respectfully disagrees.

The Examiner’s proposition is not in accordance with the cases on inherency. If the claimed fcc structure is inherently disclosed by the Aoshima patent, it must be necessarily present and a person of ordinary skill in the art would recognize its presence. *In re Robertson*, 169 F.3d 743, 745 (Fed. Cir. 1999) Stated differently, it is not sufficient that a fcc structure *may* result from Aoshima’s NiFeCr layer being formed on his Ta first base layer 21; rather, for the fcc structure to be inherent in the

structure disclosed in the prior art, it must "necessarily be present," not merely probably or possibly present.

Applicant respectfully submits that the prior art fails to establish that a fcc structure necessarily results in a second base film of NiFeX (where X includes one of Cr, Nb and Rh) composition is formed on a first base film of a nonmagnetic metal. The Examiner has not pointed to any teaching or reference in support of his position regarding inherency. Consequently, Applicant respectfully submits that the prior art is insufficient to show that a the fcc structure necessarily flows from a NiFeX being formed on top of operation a nonmagnetic metal, as set forth in the claimed invention.

Furthermore, as discussed in Applicant's Opening Brief, Aoshima does not teach, disclose, or suggest a second base film having a fcc structure and a (111) orientation, as recited in claim 1. Indeed, Aoshima is silent as to the crystalline structure and orientation of his underlayer 22. He merely reports that his PdPtMn antiferromagnetic layer 23 becomes an ordered-alloy and has more fcc structure after going through an anneal process when it is formed on the Ta/NiFeCr underlayer arrangement. (Aoshima, col. 5, lines 1-21) This teaching evinces that a "more fcc structure" does not necessarily flow from a particular composite layer (e.g., PdPtMn in Aoshima's case), but rather that the fcc structure may be realized by exposing the layer to a particular set of processing steps. Thus, there is nothing inherent about, and no suggestion in, the Aoshima patent regarding the formation a NiFeCr layer having a specific fcc structure and a specific (111) crystalline orientation.

A specific structure in one layer does not necessarily imply or suggest a specific crystalline orientation in the same layer; nor does it suggest a particular structure or orientation in another layer. Because there is no teaching or suggestion

of forming a NiFeCr underlayer with a fcc structure and (111) orientation, Applicant respectfully submits that the invention of claims 1-4 would not have been obvious to one of ordinary skill in the art at the time it was made.

2. The Examiner's Reliance On The Knowledge Of One Of Ordinary Skill In The Art Is Unsupported And Thus Improper

To establish obviousness, the Examiner must do more than identify the elements in the prior art. There must also be "some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead the individual to combine the relevant teachings of the references." *In re Fine*, 837 F.2d 1071, 1074 (Fed. Cir. 1988) "The motivation, suggestion or teaching may come explicitly from statements in the prior art, the knowledge of one of ordinary skill in the art, or, in some cases the nature of the problem to be solved." *In re Kotzab*, 217 F.3d 1365, 1370 (Fed. Cir. 2000)

In the present case, the Examiner asserts, "The technical reasoning for providing obviousness is the knowledge that a skilled artisan has, that to achieve a higher pinning field in a spin valve MR sensor, it is needed to have a highly orientated crystal structure, which preferred structure is known commonly as an fcc structure with a (111) orientation." In other words, instead of specifically finding a suggestion or motivation to combine the references in the prior art, the Examiner relies upon common knowledge and common sense of a skilled artisan. In cases where the Examiner relies upon common knowledge, however, the courts have consistently held that such "knowledge must be articulated and placed on the record." *In re Lee*, 277 F.3d 1338, 1345 (Fed. Cir. 2002) The *Lee* court explained "that 'deficiencies of the cited references cannot be remedied by the Board's general conclusions about what is 'basic knowledge' or 'common sense.'" *Id.* at 1344 (quoting *In re Zurko*, 258 F.3d 1379, 1385 (Fed. Cir. 2001))

Here, the Examiner's passing reference to the "knowledge of a skilled artisan has" is merely a generalized conclusion that is unsupported by explanation or recitation of any specific teaching in the prior art. Therefore, Applicant respectfully submits that the Examiner's reliance on "general knowledge" to negate patentability is improper.

The only "knowledge" that the Examiner seems to rely upon is that taken from Applicant's disclosure, which constitutes impermissible hindsight. "Determination of obviousness cannot be based on the hindsight combination of components selectively culled from the prior art to fit the parameters of the patented invention."

ATD Corp. v. Lydall, Inc., 159 F.3d 534, 546 (Fed. Cir. 1998) There must be a teaching or suggestion within the prior art, within the nature of the problem to be solved, or within the general knowledge of a person of ordinary skill in the field of the invention, to look to particular sources, to select particular elements, and to combine them as combined by the inventor. *Ruiz v. A.B. Chance Co.*, 234 F.3d 654, 665 (Fed. Cir. 2000); *ATD Corp., supra*, 159 F.3d at 546; *Heidelberger Druckmaschinen AG v. Hantscho Commercial Prods., Inc.*, 21 F.3d 1068, 1072 (Fed. Cir. 1994) ("When the patented invention is made by combining known components to achieve a new system, the prior art must provide a suggestion or motivation to make such a combination.").

Applicant respectfully contends that it would not have been obvious for one of ordinary skill in the art at the time the invention was made to modify the NiFeCr underlayer disclosed in Aoshima such that it would have a fcc structure and (111) orientation. As explained above, the Examiner's reliance on common knowledge is unarticulated, and there is no teaching, suggestion, or motivation in the prior art to combine the references in the manner that the Examiner suggests. Iwasaki fails to disclose a NiFeCr film with a fcc structure *and* a (111) orientation. Instead, Iwasaki

teaches that if a metal film is disposed on top of a Co based amorphous film, which is itself on top of a fcc magnetic film, that the underlying fcc magnetic film *promotes* the fcc (111) orientation of the metal film on top of the Co (Iwasaki, col. 8, lines 32-36). Applicant submits that this single sentence in Iwasaki would not have provided any motivation or suggestion to an ordinary practitioner to arrive at the present invention. A single line in a prior art reference should not be taken out of context and relied upon with the benefit of hindsight to show obviousness. *Bausch & Lomb, Inc. v. Barnes-Hind Hydrocurve, Inc.*, 796 F.2d 443 (Fed. Cir. 1986).

In sum, with no motivation or teaching that would lead one of ordinary skill to Applicant's spin valve magnetoresistance sensor Applicant respectfully submits that the Examiner has failed to set forth a *prima facie* case of obviousness. That is, the Examiner has failed to establish why one having ordinary skill in the art would have been led to the claimed invention by the express teachings or suggestions found in the prior art, or by implications contained in such teachings or suggestions. There has not been a *prima facie* showing in this case. The Examiner may not rely on a claim of inherency to establish a *prima facie* case of obviousness.

For all of the foregoing reasons, it is respectfully submitted that the rejection of claims 1-4 does not satisfy the criteria to establish *prima facie* obviousness.

3. Applicant Need Not Show Unexpected And Unobvious Results

One way for a patent applicant to rebut a *prima facie* case of obviousness is to make a showing of 'unexpected results,' i.e., to show that the claimed invention exhibits some superior property or advantage that a person of ordinary skill in the relevant art would have found surprising or unexpected." *In re Soni*, 54 F.3d 746, 750 (Fed. Cir. 1995) In this case, the Examiner contends that Applicant has the burden to overcome a *prima facie* case of obviousness by showing improved performance in a claimed range that achieves unexpected results relative to the

prior art range. Applicant respectfully submits that no such burden of proof is applicable in the present situation. On the contrary, it is the Examiner who presently bears the burden of establishing a *prima facie* case of obviousness, something which has not been done in this case. Moreover, once a *prima facie* showing of obviousness has been established, a patent applicant is not required in every case to provide comparative testing results or show unexpected results. Rather, a showing of unexpected unobvious results is only appropriate in circumstances where results of optimizing a variable within a critical range are unexpectedly good. See *In re Dillon*, 919 F.2d 688, 692 (Fed. Cir. 1990) (in banc).

In the present case, Applicant's independent claim 1 does not recite or require a critical parametric range. Instead, the invention of claim 1 recites a specific sensor structure of constituent materials having certain properties (i.e., crystalline structure and orientation). Put differently, Applicant is not required to make a showing of unexpected results because: (1) the Examiner has not met his burden of making a *prima facie* case of obviousness; and (2) the structure of independent claim 1 does not require optimizing a variable within a critical range for patentability. Consequently, it is respectfully submitted that the Examiner's presumption that Applicant is required to provide comparative test results that show unexpected results is misplaced.

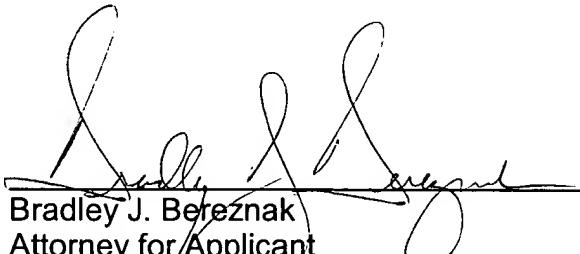
II. CONCLUSION

For all of the reasons presented above and in Applicant's Opening Brief, Applicant respectfully requests that the Examiner be directed to withdraw the rejections of claims 1-4.

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Respectfully submitted,
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Dated: 2/14, 2005


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